

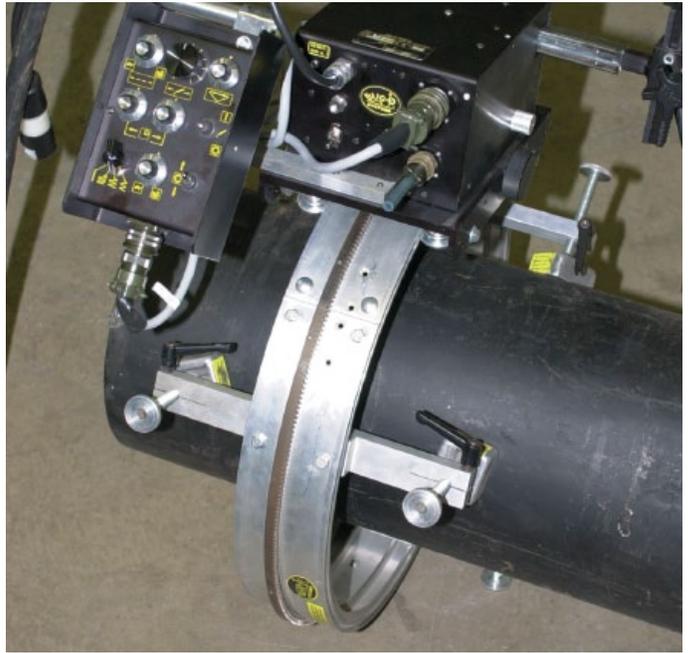


Rails and Attachments

Custom Configurations From Standard Components



Aluminum Rigid Rail (ARR) for all position straight line applications (Page 2)



Bent Rigid Rail (BRR) & Ring Rails for circumferential applications (Page 4)



Aluminum Semi-Flex Rail (AFR) for large diameter applications down to a minimum radius of 15' (5 m) (Page 2)



Hi-Flex Rail (FMD) for various circumferential and irregular surface applications down to 30" (760 mm) radius (Page 2)

Bug-O Systems offers rail for a variety of applications. Each type of rail requires a corresponding carriage and magnets or vacuum cups. Bug-O rail is lightweight and portable. When attached to the work with magnets or vacuum cups the rail can be used in any plane or position. The rail is pre-drilled for easy installation on a fixture. Choose the appropriate rail and attachments for your application.

Bug-O Systems is guided by honesty, integrity and ethics in service to our customers and in all we do.



BUG-O SYSTEMS

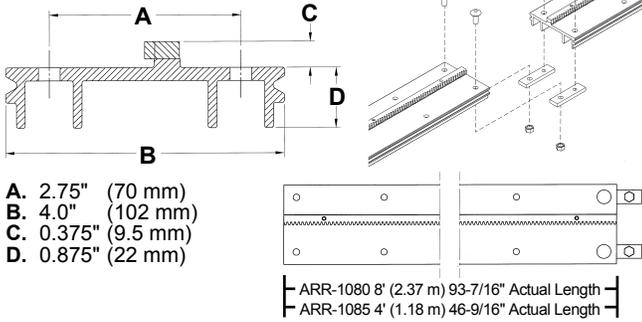
A DIVISION OF WELD TOOLING CORPORATION



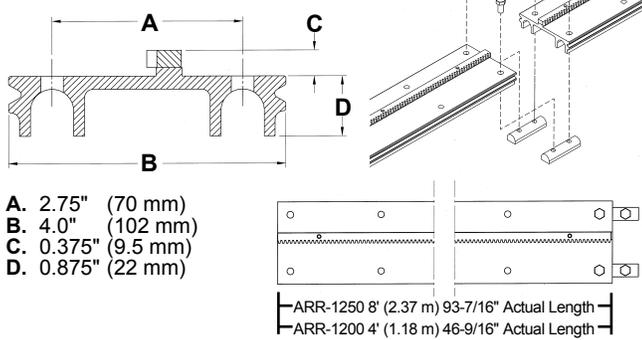
280 TECHNOLOGY DRIVE CANONSBURG, PENNSYLVANIA 15317-9564 USA
PHONE: 412-331-1776 <http://www.bugo.com> FAX: 412-331-0383

Aluminum Rigid Rails (ARR)

Heavy Duty Rigid Rail ARR-1080 & ARR-1085

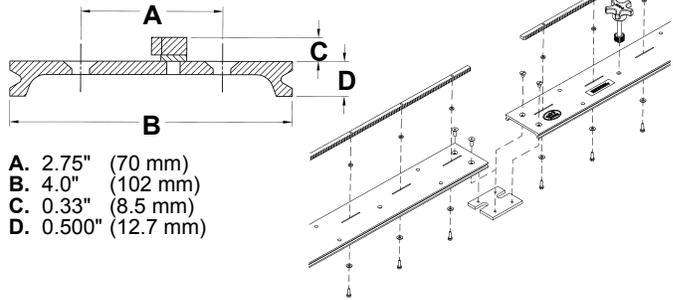


Extra Heavy Duty Rigid Rail ARR-1250 & ARR-1200

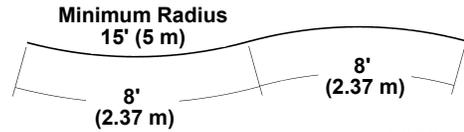


Semi-Flex Rail (AFR)

SEMI-FLEX RAIL AFR-3000 can be flexed inside or outside to a minimum radius of 15' (5.0 m) or 30' (10.0 m) diameter without permanent deformation.



CAUTION: Flexing beyond the recommended 15'-0" (5.0 m) radius may put a permanent bend in the rail and break off some of the rack screws.



A splice plate is mounted at one end of each AFR-3000 Semi-Flex Rail, for joining to additional rail sections. A rack-adjusting tool is supplied with every two (2) rails for moving the rack on the rail.

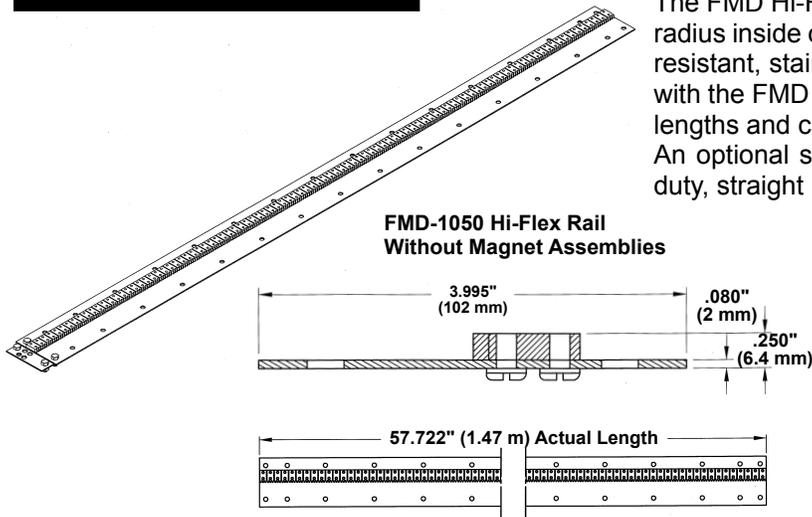
NOTE:

Use at least four (4) attachments (magnets or vacuum cups) on each **SEMI-FLEX RAIL**.
Eight (8) are recommended.

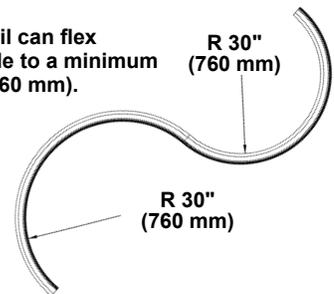


Hi-Flex Rail (FMD)

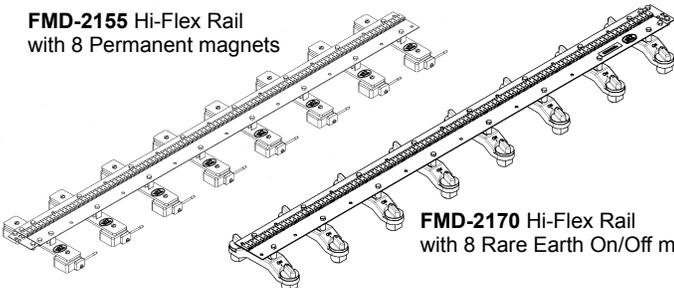
The FMD Hi-Flex Rail can flex from a straight to a 30" (760 mm) radius inside or outside. The rail is made from a tempered, wear resistant, stainless steel with a steel rack. It is designed for use with the FMD Hi-Flex Carriage. The rail comes in 57.7" (1.47 m) lengths and can be held in place with magnets or vacuum cups. An optional stiffener can be installed behind the rail for heavy duty, straight line applications.



FMD Hi-Flex Rail can flex inside or outside to a minimum radius of 30" (760 mm).

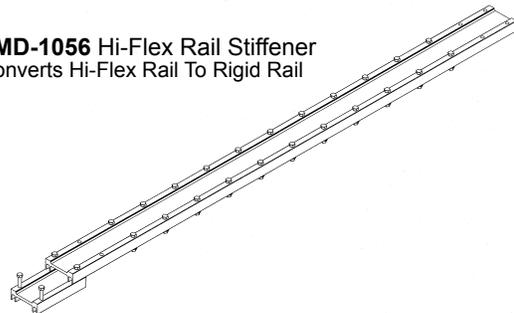


FMD-2155 Hi-Flex Rail with 8 Permanent magnets



FMD-2170 Hi-Flex Rail with 8 Rare Earth On/Off magnets

FMD-1056 Hi-Flex Rail Stiffener Converts Hi-Flex Rail To Rigid Rail



Magnets, Rail Alignment Tools and Vacuum Accessories

A Minimum of six (6) magnets or vacuums cups are required per rail for all out of position applications. Eight (8) are recommended.

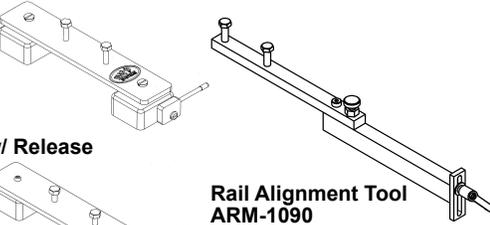
For Aluminum Rigid Rail

R.E. On/Off Magnet
ARM-2010
ARM-2010-HH*
 Holding Power
 250 lb. (113 kg)



Spacer
ARM-2015
 Use with
 ARM-2010 only

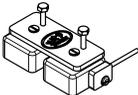
Swivel Magnet w/ Release
ARM-2325
 Holding Power
 250 lbs. (113 kg)



Fixed Magnet w/ Release
ARM-2265
 Holding Power
 200 lbs. (91 kg)

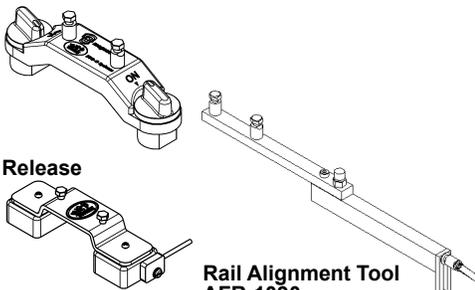
Rail Alignment Tool
ARM-1090
 Gauging device for rapid
 alignment of rails to joint

Magnet Plate, Short
ARM-2248
 Holding Power
 200 lbs. (91 kg)



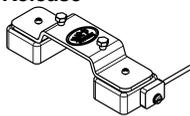
For Semi-Flex Rail

R.E. On/Off Magnet
AFR-2010
AFR-2010-HH*
 Holding Power
 250 lb. (113 kg)

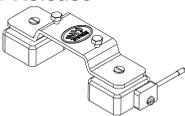


Rail Alignment Tool
AFR-1090
 Gauging device for rapid
 alignment of rails to joint

Fixed Magnet w/ Release
ARM-2465
 Holding Power
 200 lbs. (91 kg)

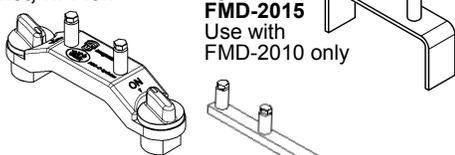


Swivel Magnet w/ Release
ARM-2425
 Holding Power
 250 lbs. (113 kg)



For Hi-Flex Rail

R.E. On/Off Magnet, Hi-Flex
FMD-2010
FMD-2010-HH*
 Holding Power
 250 lb. (113 kg)



Spacer Bar
FMD-2015
 Use with
 FMD-2010 only

Hi-Flex Magnet w/ Release
FMD-2325
 Holding Power
 250 lbs. (113 kg)



Rail Alignment Tool
FMD-1020
 Gauging device for rapid
 alignment of rails to joint

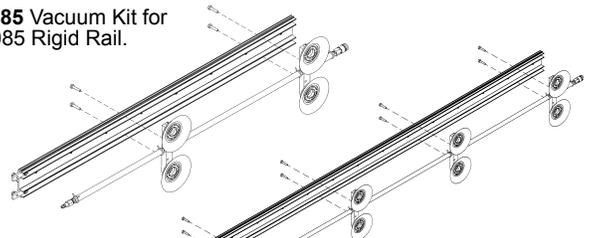
*All **XXX-2010-HH** are "High Heat" models and are rated at 180°C (356°F) for high temperature applications.



Vacuum Systems for Non-Ferrous Metals Where Magnets Will Not Hold

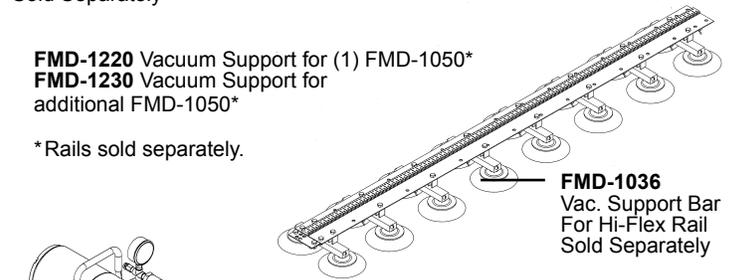
- Keep flame or arc at least 4" (100 mm) away from vacuum cups
- Vacuum systems can be used on material to 600° F (318° C)
- Vacuum kits require a source of vacuum which is provided by a Vacuum Pump Kit
- Custom systems are required for Bent Rail

ARV-1085 Vacuum Kit for
ARR-1085 Rigid Rail.



ARV-1080 Vacuum Kit for
ARR-1080 Rigid Rail and AFR-3000
Semi-Flex Rail

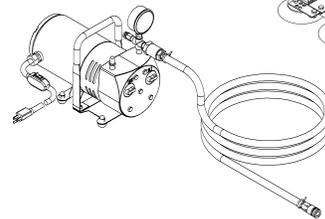
ARV-1036
 Vacuum Bar Assembly
 For ARR, AFR & BRR Rail
 Sold Separately



FMD-1220 Vacuum Support for (1) FMD-1050*
FMD-1230 Vacuum Support for
additional FMD-1050*

*Rails sold separately.

FMD-1036
 Vac. Support Bar
 For Hi-Flex Rail
 Sold Separately



ARV-2020 120 Volt/50-60 Hz
ARV-2030 240 Volt/50-60 Hz
 The ARV-2020 (ARV-2030) Vacuum
 Pump Kit is recommended for use
 with a maximum of four (4) pieces
 of rail, or sixteen (16) vacuum bars.



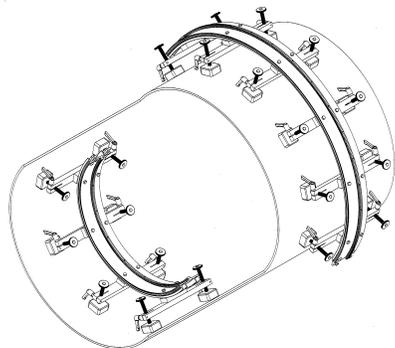
ARV-1060 Leap Frog Kit
 Used to reposition rails without
 losing vacuum

Bent Rigid Rail (BRR)

BRR rail is used for circumferential applications. The rail can be ordered either as a complete ring or as individual sections.

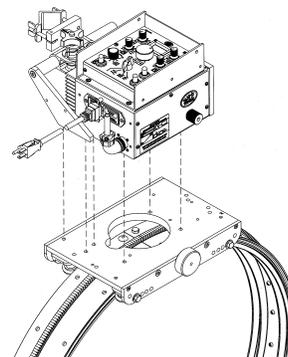
When ordering, specify inside or outside work diameter, method of mounting (magnets, vacuum cups or bolts) and if a complete circle is required.

The mounting method will be taken into consideration to determine actual rail radius. On large work diameters individual sections of rail can "Leapfrog" around the vessel. Use at least four (4) magnets or vacuum cups on each piece of **BRR-1180**.

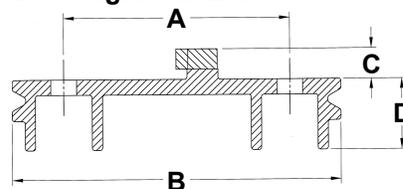


Individual sections of Bent Rigid Rail - BRR-1180

Pieces of Rail Needed to Form Complete Ring	Maximum Outside Diameter of Workpiece	Maximum Inside Diameter of Workpiece
2	3'-11" (1.20 m)	4'-5" (1.35 m)
3	6'-1" (1.85 m)	6'-7" (2.00 m)
4	8'-2" (2.49 m)	8'-8" (2.64 m)
5	10'-2" (3.10 m)	10'-8" (3.25 m)
6	12'-5" (3.79 m)	12'-11" (3.94 m)
8	16'-8" (5.08 m)	17'-2" (5.23 m)
10	20'-11" (6.08 m)	21'-5" (6.23 m)

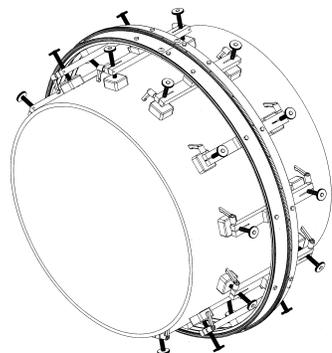


Bent Rigid Rail BRR-1180



A. 2.75" (70 mm) C. 0.375" (9.5 mm)
B. 4.0" (102 mm) D. 0.875" (22 mm)

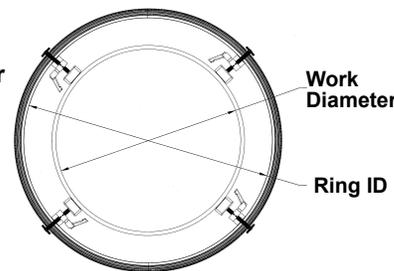
Complete Ring Rail Assemblies



Ring Rails and Tube Size Ranges

Part Number	Work Diameters		Ring Inside Diameter	
	Inches	MM	Inches	MM
(1) BRR-1210-20	9-16	230-400	20	500
(2) BRR-1210-27	16-23	410-580	27	680
(3) BRR-1210-34	23-30	590-760	34	860
(4) BRR-1210-41	30-37	770-940	41	1040
(5) BRR-1210-48	37-44	950-1120	48	1220

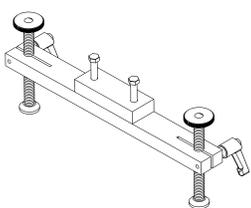
* Ring Rails do not include attachments



Magnets, Rail Alignment Tools and Vacuum Accessories

Support Bars for BRR

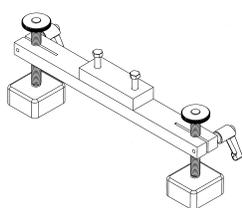
A minimum of three (3) magnet plate or screw feet assemblies are required for each ring rail section.



Support Bar w/ Screw Feet
ARM-2380

4.5" (114.3 mm) of adjustment

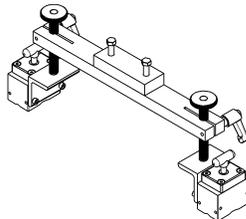
Also available as a kit of three (3)
ARM-2390



Support Bar w/ Magnets
ARM-2480

3.5" (88.9 mm) of adjustment

Also available as a kit of three (3)
ARM-2490



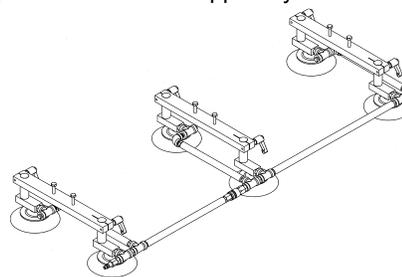
Support Bar w/ R.E. On/Off Magnets
ARM-2580

3.5" (88.9 mm) of adjustment

Also available as a kit of three (3)
ARM-2590

Vacuum Supports for BRR

For BRR-1210-XX Ring Rail Assembly Vacuum Supports may be used instead of magnets to mount the Ring Rail on non-magnetic workpieces. Each Vacuum Support System requires a Vacuum Pump Kit for operation. Custom support systems are available.



ARV-1240-20	20" (500 mm) Dia.	Vacuum Support System
ARV-1240-27	27" (680 mm) Dia.	Vacuum Support System
ARV-1240-34	34" (860 mm) Dia.	Vacuum Support System
ARV-1240-41	41" (1040 mm) Dia.	Vacuum Support System
ARV-1240-48	48" (1220 mm) Dia.	Vacuum Support System

Rapid Installation Rail

Bug-O Piper Steel Rail (PSR) & Bent Rigid Rail (BRR) are made to order, to fit specific diameters. They are designed for rapid installation and movement between weld locations. To insure proper fit, confirm exact work piece outside diameter when ordering.

Features:

- Quick attach ring rail mounts quickly and easily to the pipe
- Spacer bars adjust and center the ring to the pipe surface
- Powerful latches lock the rail into position
- Machine mounts quickly to the rail using standoffs and a split carriage
- For pipes with a minimum outside diameter of 16" (45.72 cm) or larger

PSR-2000-XX (Piper Steel Rail)

Flexible stainless steel 6" in width designed for specific pipe outside diameters. It is equipped with rigidly adjustable feet and latch assembly.



For Piper-Bug & Piper-Plus only

Benefits:

- Fast setup
- Fast removal
- Lightweight and easy to move from pipe to pipe
- Large surface area on spacer bars reduces marking of the pipe surface

BRR-3250-XX (Bent Rigid Rail)

Aluminum extrusion rolled to custom dimensions for specific pipe outside diameters. Utilizes hinge and locking clamps with spring loaded stand offs for quick removal and relocation.



For Universal Bug-O-Matic, MDS, Piper-Bug & Piper-Plus

(XX= Diameter specified by customer including coating if applicable)



PSR-2000-XX Piper Steel Rail
Easily Installed on the workpiece
for quick installation and removal



BRR-3250-XX Bent Rigid Rail
Easily Installed on the workpiece
for quick installation and removal



Carriages

BUG-O carriages maximum load capacity is based on the number of carriage wheels. A carriage is capable of holding 25 lbs. per wheel.

For Aluminum Rigid Rail

For Modular Drive And Universal Bug-O-Matic

- Releasable (can be installed anywhere along the track)

MPD-1065 Releasable Carriage
 Net Weight: 7.75 lbs. (3.52 kg)
 Shipping Weight: 9 lbs. (4.09 kg)

For DC IV Drives

BUG-5250 Carriage 12" (305 mm)
 Net Weight: 5 lbs. (2.26 kg)
 Shipping Weight: 7 lbs. (3.17 kg)

For Bent Rigid Rail

- Mounts a DC IV Drive Unit, Modular Drive Unit and Universal Bug-O-Matic
- Releasable (can be installed anywhere along the track)
- Runs on straight or BRR Ring Rail

BUG-5910 Split Carriage
 Net Weight: 7 lbs. (3.17 kg)
 Shipping Weight: 8 lbs. (3.62 kg)

For Hi-Flex Rail

FMD-1150 Hi-Flex Carriage
 for DC-III Drive

FMD-1105 Drive Carriage
 with cable anchor for MDS Master Drive or Universal Bug-O-Matic on High-Flex Rail

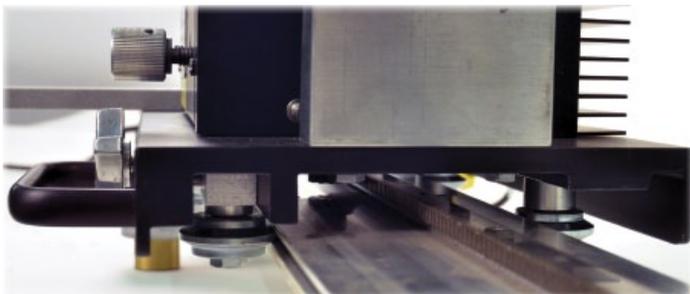
		Rails		
		ARR	AFR	BRR
Carriages	BUG-5250	X	X	N/A
	BUG-5910	X	X	X
	MPD-1065	X	X	X
	BUG-5260	X	X	N/A
	BUG-2790	X	X	N/A
	BUG-2785	X	X	N/A

* These carriages are split style and can be mounted or removed at any location on the rail.

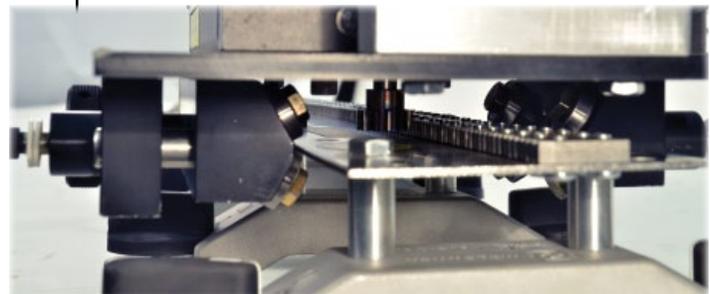
BUG-5250 accepts: DC IV Drives

BUG-5910 accepts: DC IV, MDS & Universal Bug-O-Matic Drives

MPD-1065 accepts: MDS & Universal Bug-O-Matic Drives



MPD-1065 Releasable Carriage
 Mounted on Bug-O Aluminum Rigid Rail

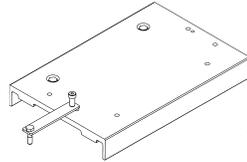
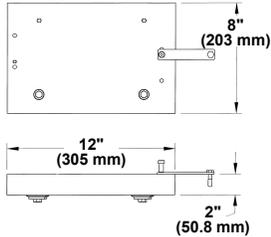


FMD-1105 Drive Carriage
 Mounted on Bug-O Hi-Flex Rail

Optional & Specialty Carriages

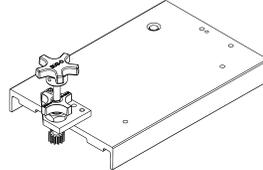
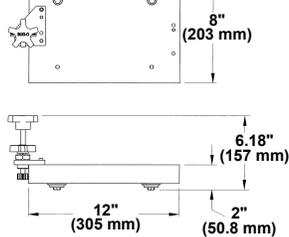
BUG-O carriages maximum load capacity is based on the number of carriage wheels. A carriage is capable of holding 25 lbs. per wheel.

Carriages For ARR & AFR Rail



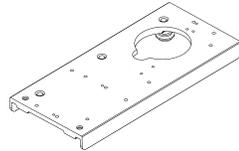
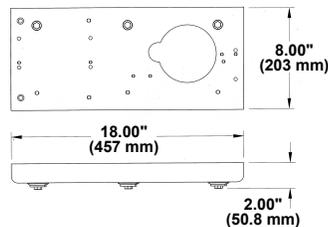
- Used to carry accessories, wire feeder, etc.

BUG-2205 Carriage Trailer w/ Hitch
 Net Weight: 6 lbs. (2.72 kg)
 Shipping Weight: 8 lbs. (3.62 kg)



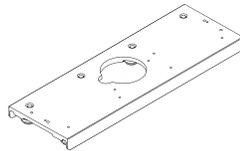
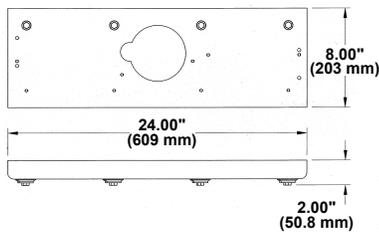
- Knob is used manually to move the carriage along the track
- Bottom knob locks carriage to a fixed rail position

MUG-1140 Spotting Car
 Net Weight: 6 lbs. (2.72 kg)
 Shipping Weight: 8 lbs. (3.62 kg)



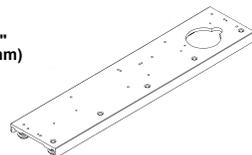
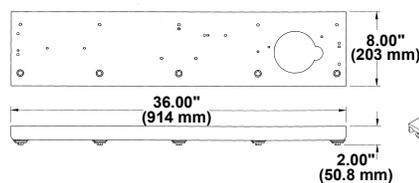
- Longer deck to mount accessories, wire feeder, etc.
- 6 carriage wheel assy

BUG-5260 Carriage 18" (457 mm)
 Net Weight: 6 lbs. (2.72 kg)
 Shipping Weight: 8 lbs. (3.62 kg)



- Longer deck to mount accessories, wire feeder, etc.
- 8 carriage wheel assy

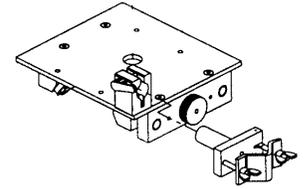
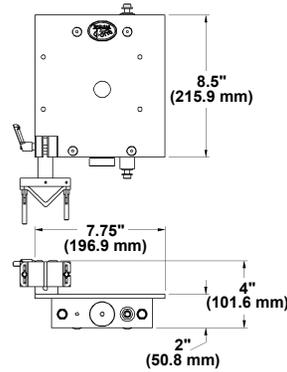
BUG-2790 Carriage 24" (609 mm)
 Net Weight: 11 lbs. (5 kg)
 Shipping Weight: 15 lbs. (6.80 kg)



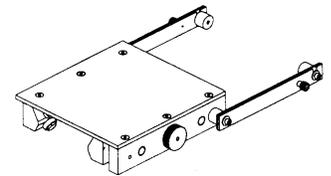
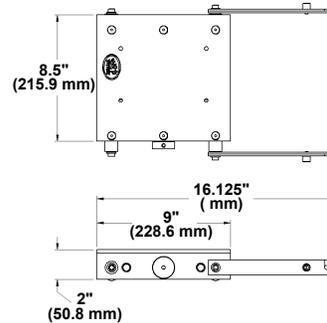
- Longer deck to mount accessories, wire feeder, etc.
- 10 carriage wheel assy.

BUG-2785 Carriage 36" (914 mm)
 Net Weight: 16.5 lbs. (7.50 kg)
 Shipping Weight: 23.0 lbs. (10.44 kg)

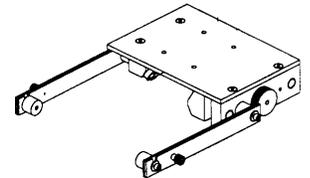
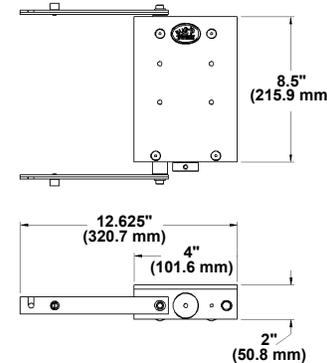
Carriages for FMD Rail



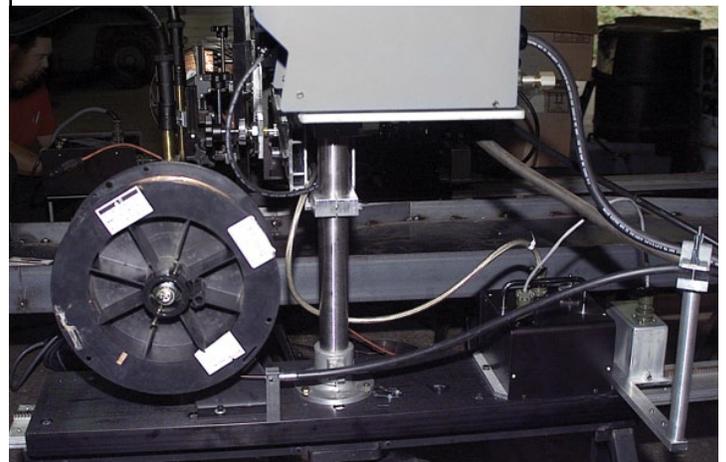
- FMD-1100 Drive Carriage**
- Used when oscillation is not required



- FMD-1090 Long Trailer**
 For use w/ FMD-1100
- Used to carry accessories, wire feeder, etc.



- FMD-1095 Short Trailer**
 For use w/ FMD-1100
- Used to carry accessories, wire feeder, etc.



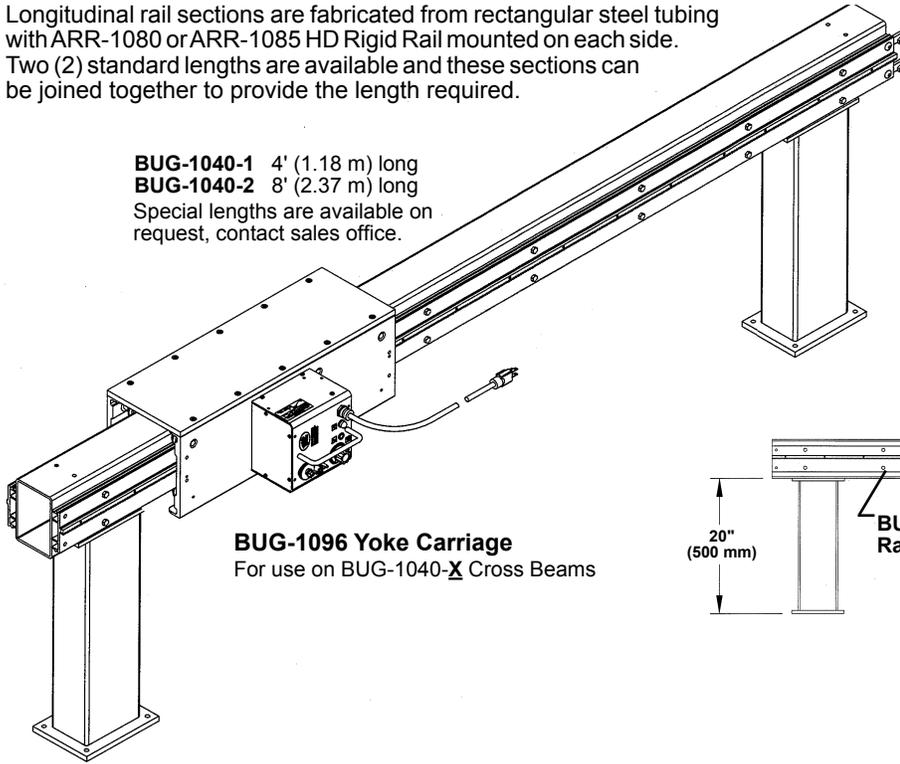
BUG-2785 Carriage 36" (914 mm) mounted on Bug-O ARR Rail
 Used as part of a Dual Torch Beam Welding Gantry

Fixture Building

Cross Beam Assemblies

Longitudinal rail sections are fabricated from rectangular steel tubing with ARR-1080 or ARR-1085 HD Rigid Rail mounted on each side. Two (2) standard lengths are available and these sections can be joined together to provide the length required.

BUG-1040-1 4' (1.18 m) long
BUG-1040-2 8' (2.37 m) long
Special lengths are available on request, contact sales office.



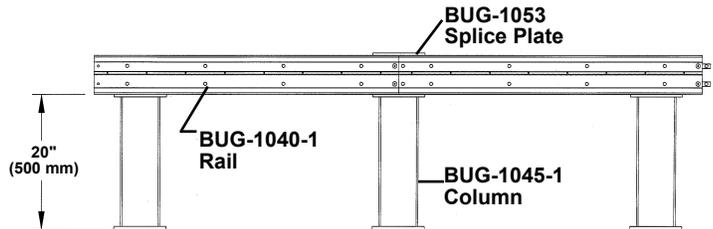
BUG-1096 Yoke Carriage
For use on BUG-1040-X Cross Beams

Splicing Plates

BUG-1053 Splicing Plates are used with the BUG-1040-1 and BUG-1040-2 longitudinal rail sections. Order one splice plate per joint.

Vertical columns for BUG-1040-1 or BUG-1040-2 longitudinal rail sections are available in three lengths.

BUG-1045-1 Vertical Column 20" (500 mm)
BUG-1045-2 Vertical Column 40" (1000 mm)
BUG-1045-3 Vertical Column 60" (1500 mm)



**For more information or to purchase Bug-O products,
contact your local Bug-O distributor.**



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